Abstract

Methods and devices for storing binary IP addresses in memory. The longest prefix match problem is converted into a range search problem and the IP addresses corresponding to the different ranges are stored in a tree data structure. The nodes of the tree data structure are created from the bottom leaves up to the root node. The IP addresses are sorted by binary number order and grouped according to the number of common leading or trailing bits per group. For each group, the common leading and/or trailing bits are then removed and the number of bits removed are stored, along with the stripped IP addresses in that group, in a node in the tree data structure.